

SENATE RECORD VOTE ANALYSIS

104th Congress
2nd Session

Vote No. 267

September 4, 1996, 5:28 pm
Page S-9820 Temp. Record

VA-HUD APPROPRIATIONS/Space Station Termination

SUBJECT: Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Bill for fiscal year 1997 . . . H.R. 3666. Bond motion to table the Bumpers amendment No. 5178.

ACTION: MOTION TO TABLE AGREED TO, 61-36

SYNOPSIS: As reported, H.R. 3666, the Departments of Veterans Affairs and Housing and Urban Development, and independent Agencies Appropriations Bill for fiscal year 1997, will provide a net of \$84.7 billion in new budget authority, which is \$2.8 billion under the Administration's request, \$714 million more than provided in the House-passed bill, and \$2.3 billion more than provided in FY 1996.

The Bumpers amendment would prohibit the use of funds from this Act for the Space Station Program, except to pay for termination costs. (Spending on the Space Station is capped at \$2.1 billion yearly out of the \$1.5 trillion Federal budget).

Debate was limited by unanimous consent. Following debate, Senator Bond moved to table the Bumpers amendment. Generally, those favoring the motion to table opposed the amendment; those opposing the motion to table favored the amendment.

Those favoring the motion to table contended:

Our dear colleague from Arkansas is as wrong this year about the Space Station Program as he was last year as he was the year before as he was every other year he has offered this same tired amendment. Each year, he lengthily mischaracterizes the value of the program, and opines instead for increased spending for his favorite social welfare programs. We do not believe in the zero-sum, redistributionist world of our colleague--we understand that investment in space yields a many-fold return in benefits for people on Earth.

Researchers who already have been conducting microgravity experiments in space would be surprised to hear that having a permanent space station on which they could conduct much longer experiments would be useless. After all, they have already made

(See other side)

YEAS (61)			NAYS (36)		NOT VOTING (3)	
Republicans (38 or 76%)	Democrats (23 or 49%)		Republicans (12 or 24%)	Democrats (24 or 51%)	Republicans (3)	Democrats (0)
Bennett	Helms	Akaka	Abraham	Baucus	Hatfield- ^{2AY}	
Bond	Hutchison	Biden	Ashcroft	Bradley	Murkowski- ²	
Burns	Inhofe	Bingaman	Brown	Bryan	Santorum- ²	
Campbell	Kassebaum	Boxer	Chafee	Bumpers		
Coats	Kempthorne	Breaux	Cohen	Byrd		
Cochran	Kyl	Daschle	Faircloth	Conrad		
Coverdell	Lott	Dodd	Jeffords	Dorgan		
Craig	Mack	Feinstein	Lugar	Exon		
D'Amato	McCain	Ford	Snowe	Feingold		
DeWine	McConnell	Glenn	Specter	Harkin		
Domenici	Nickles	Graham	Thomas	Hollings		
Frahm	Pressler	Heflin	Warner	Kennedy		
Frist	Roth	Inouye		Kerrey		
Gorton	Shelby	Johnston		Kerry		
Gramm	Simpson	Lieberman		Kohl		
Grams	Smith	Mikulski		Lautenberg		
Grassley	Stevens	Moseley-Braun		Leahy		
Gregg	Thompson	Murray		Levin		
Hatch	Thurmond	Pell		Moynihan		
		Reid		Nunn		
		Robb		Pryor		
		Rockefeller		Simon		
		Sarbanes		Wellstone		
				Wyden		

EXPLANATION OF ABSENCE:

1—Official Business
2—Necessarily Absent
3—Illness
4—Other

SYMBOLS:

AY—Announced Yea
AN—Announced Nay
PY—Paired Yea
PN—Paired Nay

several key advances. In the pharmaceutical field, the Hauptman Institute and Eli Lilly are currently applying knowledge gained from space-grown crystals to design a nontoxic drug that will bind insulin, improving the treatment of diabetic patients. Vertex Pharmaceuticals is using space-grown crystals of Elastase to improve treatment for emphysema. The Marshall Space Flight Center, using space-based research, recently published the structure of a major human antibody that recognizes the AIDS virus. Other pharmaceutical companies that are working with NASA, and investing money in space research, include Bristol-Myers Squibb, SmithKline Beecham, BioCryst, DuPont Merck, Eastman Kodak, Schering-Plough, and Upjohn.

Other key areas of space research that are already yielding tangible benefits include metallurgy and combustion science. For metallurgy, Dr. Glicksman of the Rensselaer Polytechnic Institute recently conducted space experiments that led to new understandings of how the structure of metal forms, which will aid in the development of stronger or more corrosion-resistant metal alloys, and Dr. Szekely of the Massachusetts Institute of Technology developed new mathematical models based on space experiments that will improve predictions of the behavior of metals during processing. For combustion science, the advances promise to be spectacular. Combustion accounts for approximately 85 percent of the world's energy production as well as a significant fraction of the world's atmospheric pollution. Breakthroughs in this field could yield tremendous benefits. For instance, just a 2-percent increase in burner efficiency would save the United States \$8 billion per year. NASA just applied for a patent on one of its recent advances from space-based research on combustion--a device that improves air quality by reducing nitrous oxides.

A whole new field of medical research that cannot be conducted on the ground was recently started with the development of NASA's space-based bioreactor. This reactor has been used successfully to grow three-dimensional tissue models of breast and ovarian cancer. Using conventional culture techniques no one has ever before been able to produce masses that resemble tumors. Little progress has been made in treating ovarian cancer in the past 30 years. Microgravity research, especially the type of extended research possible on the Space Station, may well finally lead to advances in treatment.

We of course do not know what exactly we will discover by creating the Space Station. Over the years, a large number of the most astonishing and helpful scientific breakthroughs that have come from space research have been found to have many applications beyond the purposes for which they were originally intended. One example that most Senators are familiar with is the development of nonflammable clothing for astronauts, which has certainly found an additional use--nonflammable baby pajamas--that all Senators applaud. Literally hundreds of everyday products were derived from America's space programs.

One very recent example of a spin-off advance comes from the much-maligned Hubble telescope. Twenty years ago, we invested in digital technology, despite all the naysayers who said we were wasting our money. When the Hubble telescope was found to be defective, that digital technology was further developed especially for the Hubble, to enable astronomers to distinguish very minute points of light. That technology has now been applied to medical imaging, and as a result doctors are able to detect breast cancer tumors five times better than they formerly were able to detect them.

Our colleagues have complained, as they have complained in prior years, that the United States cannot afford to build the Space Station. In response, spending on the Space Station costs less than one-seventh of 1 percent of the Federal budget. The country is deeply in debt because of the growth of entitlement spending on social welfare programs, not because of the ever declining amount that it spends on scientific research. This program is less than 1 percent off-schedule and off-budget, which is better than 99 percent of other Federal programs. Further, NASA informs us that the Station will be fully deployed and operational by 2003 as planned and on-budget. The station is already 45-percent built; claims that cost overruns are going to result in huge, unplanned expenses are nonsense. The \$94 billion, 10-year cost estimate that the General Accounting Office (GAO) gave is misleading. The GAO mistakenly included \$51 billion that NASA has budgeted for shuttle missions, and it also included the costs of the experiments that will be conducted on the Space Station. From October 1993 through fiscal year 2003, costs will only be \$17.4 billion, and every year NASA will stay under its \$2.1 billion Space Station spending cap. Further, significant financial and scientific support is coming from countries around the world--so far, other countries have given \$6 billion. Finally, for anyone who believes that NASA has escaped the budget ax that has fallen on the rest of the Federal Government, we suggest that NASA has led the way in fiscal responsibility. Under the leadership of Dr. Golden, NASA conducted a zero-based budgeting exercise that resulted in an in-house workforce reduction of 1,000, or nearly 50 percent. NASA has slashed costs in order to be able to afford the Space Station. The Space Station is NASA's top priority.

Senators should always support research, in tight budgetary times as well as in times of plenty. Research is an investment in our children's future--the benefits of learning and advancing end up making everyone better off. The Space Station Program represents only a very tiny part of the overall Federal budget, but in our opinion, it is one of the best Federal programs ever. We are confident that most of our colleagues agree, and will therefore join us in defeating the Bumpers amendment.

Those opposing the motion to table contended:

To date, we have spent more than \$15 billion on building the Space Station. The General Accounting Office (GAO) has said the total cost of this station over the years will reach \$94 billion. Each year, the cost to complete it goes up, and each year the expectations of what it may achieve go down. We started with the following missions--a staging base, a manufacturing facility, a space-based observatory, a transportation node, a service facility, an assembly facility, a storage facility, and a research facility. All

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but the last of those missions have been abandoned.

Senators, and NASA scientists, still make claims that it will make a wonderful microgravity research station. However, nearly every expert we have consulted has said that having a manned microgravity research station makes no sense because the movement of the astronauts will ruin the experiments, and further, that doing any microgravity research, whether manned or unmanned, is of marginal value. As Dr. Bloembergen of Harvard summed it up, "microgravity is of microimportance." The American Cancer Society has informed us that it sees no valid justification for favoring space-based cancer research over research on the ground; the American Physical Society has said that medical advances would be unlikely; the Arthritis Foundation has asked that the money for the Space Station be spent building laboratories on Earth instead. Not only will the Space Station not result in discoveries in areas being investigated, it will not result in spin-off discoveries. Frequently, Senators like to claim that space research results in unintended discoveries. As the Wall Street Journal recently reported, though, many of the spin-off products that so many people think came from space research, like velcro, simply did not.

There is one mission for the Space Station that is not commonly discussed. That mission is to gather data on maintaining human life during long-duration space flights in preparation for a flight to Mars. As Dr. Carl Sagan, physicist and author, recently put it, "The only tangible and coherent goal of a space station is eventual human missions to near-Earth asteroids, Mars, and beyond. Historically, NASA has been cautious about stating this fact clearly, probably for fear that Members of Congress would throw up their hands in disgust." Dr. Sagan, many NASA scientists, and we do not doubt many of our colleagues favor a manned space flight to Mars. We absolutely do not. We have too many pressing social needs at home. It is the most absolutely misguided set of priorities we can imagine. Going to Mars will not require any new technological achievements. We already have the capability; the only question is whether we are foolish enough to assume the expense.

Scientists know that a space station will not lead to breakthroughs in medicine, metallurgy, or other fields. They also know that the supposed spin-offs that have come from space research have been exaggerated. When all is said and done, this funding is really about whether we are willing to send an astronaut to Mars. We are not, and thus favor the Bumpers amendment.